

Importance of land use and soil conservation as an environmental profile

08/06/01 Daily News

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Soil, water and air are the 3 major natural resources essential for the existence of man and all other living beings. Existence of life depends on the equilibrium of these natural resources. Threat to life cannot be avoided if this equilibrium is broken. Also the equilibrium of these resources depend on its own operation. No artificial process has been identified by man in order to substitute the natural cycling process.

For instance man even cannot make an attempt to recycle created the toxic waste containing polluted air created by his own industrial activities into basic compounds that can be used by flora and fauna communities. It is clear by the fact that not even a plan has been submitted so far in this regard. Therefore it is high time to think twice of the existence and equilibrium of natural resources when man fulfil his needs from environment.

Severely affected

The earth belongs to the entire flora and fauna community. It is the only have for all of us. But due to various human malpractices the natural resources of the earth and their natural cycles have been severely affected. For instance the negative impacts caused to water cycle as well as situation created by soil erosion and soil degradation due to careless deforestation by human acts can be pointed out.

The hill country of Sri Lanka has faced many issues due to this soil erosion. Fertile soil layer favourable for agriculture is eroded by this and deposits in rivers and reservoirs. The electricity generation capacity is decreased due to the failure to sustain the maximum capacity of water in reservoirs as a result of Siltation of soil in rivers and reservoirs

and this has drawn man towards other negative results as well.

Sri Lankan total land extent is 6,561,000ha. from which 2 million ha. have been used for agriculture. One million out of that 2 million hectares have been used for permanent agriculture, which is spread throughout low country, dry and intermediate zones and coastal areas. Majority of the remaining amount of land area which is more than 1 million hectares belong to central and hill country agricultural lands. In the old days the natural forest cover was considered as a place of origin of various natural resources and was classified as maha mukalana, mukalana, deiyange kele, garden and keth bima.

The maha mukalana and mukalana were never used for any human activities. They were considered as habitats of wild beasts and was a totally conserved area. This situation paved the way for civilisation in low lands of Sri Lanka and these natural forests provided the requirements like water, fertilizer, soil and other necessary resources needed for the civilisation. However, these natural resources have been threatened due to incidences taken place as a result of foreign invasions and many other activities done by us. The forest cover of 56% from the total land extent in 1950 has been declined to 27% by 1986 and 23.9% by 1992. At present we lose around 25,000 - 30,000 hectares of forest lands annually.

Therefore it is visual that our natural forest cover is threatened and declining daily. Although the present forest land extent of Sri Lanka is around 20% - 21% from the total land extent, we cannot be satisfied with the amount when considering the extension of it. The forest resource left in the wet zone, central hills is very much lower because most of the remaining forest lands are in the northern, southern & eastern areas.

Most of the agricultural lands in low lands are

minor slopes or valleys. But most of the agricultural lands in the up country and intermediate area are steep slopes or slopes. Therefore, the risk of soil erosion in agricultural activities in up country is severe than agricultural activities in low country. When considering the area around Uma Oya, can be divided into 10 Micro hydro-catchment areas. Haloya, one of the ten microhydrocatchment areas of Uma Oya release more than 175 tons of sediment annually from one hectare to Uma Oya. Although the other areas do not release the same amount, more than 100 tons of sediments are released annually.

Major issue

This is the major issue faced by this area today. More than 500,000 tons of sediments are added to Rantambe reservoir due to this. 54% of the reservoir is filled with sediments today due to excessive direct and Siltation attachment with Uma Oya.

The amount of electricity generation from the reservoir has been drastically declined and a large amount of money has to be expended annually for the cleaning of the turbine. Also when the whole Mahaweli area is considered more than 132,000 metric tons of sediments are added to Mahaweli river from this area annually.

Loss of such a huge amount of fertile soil favourable for agriculture to hill country to soil erosion, is an unbearable loss to agricultural activities of the area. Due to deforestation of remaining forest resources for the sake of agriculture and other activities; the soil is exposed to wind and water which has accelerated soil erosion.

Soil erosion on exposed soil is unavoidable. This destroys the surface soil layer and farmers lose agricultural lands due to this. A soil experienced soil erosion like this takes thousands of years to come to normally. However, as a result of this farmers who

cultivated two seasons a year, cultivate only one season today. This ability will also be deteriorated in the future.

Soil erosion is a slow but continuing process and it totally changes the soil layer Transportation of soil particles along the slopes and Siltation in low lands is called soil erosion.

Percentage of carbon in a fertile soil is higher. The depth and porosity of that soil decide the speed of water flow and the ability to sustain water in the soil. Surface soil layer about 10 cm deep is favourable for many crops. The basic elements like Nitrogen (N), Phosphorous (P), Potassium (K) and other essential elements and micro fertilizers are found in this soil. Degradation of this soil creates unfavourable situations in agriculture. More and more fertilizer have to be used as an outcome of this situation and farmers have to expend much money on insecticides etc. This declines the profits of farmers.

(To be continued)